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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,927	10/21/2003	Kazuya Tanabe	0505-1250P	3170

2292 7590 04/23/2007
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER	
LEUNG, KA CHUN A	
ART UNIT	PAPER NUMBER
3747	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/23/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/688,927	TANABE ET AL.	
	Examiner	Art Unit	
	Ka Chun Leung	3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *THREE* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 FEB 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The following Office Action is in response to the amendment received on 22 MAR 2007.

Election/Restrictions

2. The Applicant amended claims have been fully reviewed and it has been noted that independent claims 1, 3, 4, and 5 have not all been amended to directed towards the elected invention of Group I. As such, the previously withdrawn claims, 3-5 and 8-20, are hereby rejoined and fully examined for patentability.

Information Disclosure Statement

3. The Applicant has noted on Page 8 of the Remarks that an Information Disclosure Statement and copy of JP 10-512805 has been concurrently submitted. However these documents are presently missing from the application.

4. It should be noted that JP 10-512805 as disclosed in [0003] of the Specification appears to be a published Japanese patent application rather than a "Japanese PCT Patent". The corresponding PCT publication for the above Japanese publication is WO 96/22148. Both the abstracts of JP 10-512805 and WO 96/22148 have been cited and fully considered.

Specification

5. The disclosure is objected to because of the following informalities: paragraph [0003] should be corrected to remove the word "PCT", please refer to Paragraph 4 above. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the last indent recites "a shroud provided with a pair of upper portion and lower portion cover members...". It is unclear as to whether the "pair" refers to one set of upper and lower portion covers or two sets of upper and lower portion cover members. Presently the above is interpreted as having a single upper portion cover member and a single lower portion cover member.

8. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent Claim 1 recites "a catalyst layer for treating atmospheric pollutants, said catalyst layer being formed on the cooling fins." It is unclear as to whether the recited "said catalyst layer" of Claim 11 is in reference to the

catalyst layer formed on the cooling fins, or if the catalyst layer is one disposed separately from that of the cooling fins.

9. If "said catalyst layer" is in reference to the one applied on the cooling fins then Claim 11 may be further objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Note that the catalyst layer would be inherently "disposed between said an air intake passage and said engine" since the layer would be formed on top of the engine and the air intake passage would be formed over both the layer and the engine.

Claim Rejections - 35 USC § 103

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Independent Claim 1 and Dependent Claims 2, 6-9, and 11-20

11. Claims 1-2, 6-7, 11-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over RYU et al (US 6,216,660) in view of POLES et al (US 2001/0021363).

12. RYU et al discloses a hand-held type 4-cycle engine comprising of a shroud (69) mounted to the engine body to cover the head portion of the engine body (1) and flywheel magneto (59) and to define a cooling air passage (68). An inlet (68i) allows air

in between the centrifugal clutch (64) and the shroud (69). Cooling fins (10) are disposed around the outer periphery of the single cylinder (9) of the cylinder block (6). Additionally, cooling blade (60) provides air flow through the cooling air passage (68) to cool various portions of the engine (E). However, RYU does not disclose the use of a catalyst layer on the cooling fins for treating atmospheric pollutants.

13. POLES et al discloses a method and apparatus for treating the atmosphere by utilizing a catalyst that can treat pollutants, such as ozone, at ambient conditions "by coating a surface (e.g. motor vehicle atmosphere contacting surfaces)". Poles et al recited in paragraph [0066]:

> "The atmosphere contacting surface of the substrate which contains the pollution treating composition is in direct contact with the atmosphere. Preferred and useful atmosphere contacting surfaces include billboards, signs, heat exchange coils, air conditioning systems, surfaces associated with supplying air to tunnels, and surfaces associated with motor vehicles such as body surfaces, sign deflector surfaces, grill surfaces, mirror backs. Such surfaces must contact the ambient air alone (i.e. relying on natural wind currents) or through the assistance of an air drawing or forcing means such as a fan."

Additionally, Poles et al recites in paragraph [0087]:

> "Ozone treating catalyst compositions comprise manganese compounds including manganese dioxide...".

14. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the engine surfaces of RYU et al that contact ambient drawn by the fan with an ozone treating catalyst, in light of the teachings of POLES et al, in order to convert the pollutant ozone into oxygen.

15. Specifically regarding Claim 1, the cooling fins (10) of RYU et al utilizes air inducted by the cooling blade (60) to provide a cooling effect for the engine and is therefore a good candidate for the application of the above ozone treating catalyst. With regards to the limitation that the shroud is provided with an "upper portion" and "lower portion" cover members, the shroud of RYU et al inherently has an upper half and lower half, defined for example as the portion above the crankshaft and below the crankshaft when viewed in the orientation of Figure 2. The two portions as a whole defines a cooling passage and helps direct cooling air. RYU et al is silent on whether the shroud is formed in multiple pieces or integrally, but in either case the region with the top surface can be identified as a "top portion" and the lower surface can be identified as a "lower portion".

16. Specifically regarding Claims 2, 11, and 13, the inner surface of the shroud (69) defines a cooling air passage (68), guiding and directing air inducted by the cooling blade (60) and is therefore also a good candidate for the application of the above ozone treating catalyst.

17. Specifically regarding Claim 12, it is known in the art to produce fan shrouds/cowls using a plastic material (for examples see US 6,123,051 and US 6,189,492) and moreover it is common to form these shrouds using an injection-molded process (for examples see US 5,423,660 and US 6,595,744). It is well known in the art of injection-molding to provide the use of ribs to strengthen parts instead of increasing the thickness of the walls, and further to provide dimensional control during the injection molding process (see articles entitled "Injection Molding Design Guidelines", "Plastic

Injection Molding" and "Ribs & Webs"). Note that since the shroud has curved cross section, it would have been obvious to one of ordinary skill in the art to produce an injected molded shroud with curved ribs (corresponding to the shroud curvature) to strengthen and stiffen the shroud without increasing the thickness of the wall.

18. Specifically regarding Claim 14, Figure 3 illustrates the shroud (69) as being installed on the exterior of the device and therefore acts as a "body cover" providing a barrier between the exterior and interior.

19. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over RYU et al (US 6,216,660) and POLES et al (US 2001/0021363) as applied to Claims 1-2, 6-7, 11-14 and 16-17 above, and further in view of WERNHOLM et al (US 6,692,551).

20. RYU et al, as described above, discloses a hand-held type 4-cycle engine comprising of an engine body (1), a cooling blade (60) to provide air flow, an air inlet (68i), an air passage (68), a shroud (69), a cylinder block (6) with a single cylinder (9) which further includes cooling fins (10). RYU et al additionally discloses the use of an air cleaner (4) which connects to the intake passage of the carburetor (2). POLES et al, as described above, discloses a method and apparatus for treating the atmosphere by utilizing a catalyst that can treat pollutants, such as ozone, at ambient conditions "by coating a surface (e.g. motor vehicle atmosphere contacting surfaces)". POLES et al additionally notes in the Background that prior art reference US 3,738,088 discloses the use of an air filtering assembly for cleaning pollution from ambient air by utilizing a

vehicle as a mobile cleaning device. However, POLES does not distinctly disclose the application of the ozone treating catalyst disposed in an air cleaner.

21. WERNHOLM et al discloses an air cleaner assembly (10) and process comprising a housing (12, 14) with a filter element situated therein, an outlet (16) for allowing filtered air to flow to the engine, and an inlet conduit (22) extending from the housing for permitting the entry of air. The air cleaner assembly (10) further comprises ab absorber member (34), as described in Column 4, Paragraph 3, which may "comprise a substrate coated material" and further "have a sufficient surface area and structural integrity to support a pollutant treating material, and, where desired, a catalyst." As described in Column 5, the "pollutant treating material can be capable of absorbing pollutant contained in the air surrounding the substrate" and one of the contemplated pollutants listed is ozone.

22. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the air cleaner of RYU et al with an absorber member, in light of the teachings of WERNHOLM et al, in order to treat pollutants contained in the air surrounding the substrate such as ozone in the ambient air being inducted into the engine.

23. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over RYU et al (US 6,216,660) and POLES et al (US 2001/0021363) as applied to Claims 1-2, 6-7, 11-14 and 16-17 above, and further in view of KELLER (US 2,635,858).

24. RYU et al, as described above, discloses a hand-held type 4-cycle engine comprising of an engine body (1), a cooling blade (60) to provide air flow, an air inlet (68i), an air passage (68), a shroud (69), a cylinder block (6) with a single cylinder (9) which further includes cooling fins (10). POLES et al, as described above, discloses a method and apparatus for treating the atmosphere by utilizing a catalyst that can treat pollutants, such as ozone, at ambient conditions "by coating a surface (e.g. motor vehicle atmosphere contacting surfaces)". However, neither reference discloses the use a plurality of through holes or cut outs on the cooling fins. Note that as recited in the claims, the "through holes" can also be interpreted as a type of "cut outs".

25. KELLER discloses a vibration damping means and is particularly directed to damping vibrations of fins projecting from a body that is to be heated or cooled. KELLER cites for example "cylinders of an air-cooled internal combustion engine are provided with a plurality of spaced fins projecting therefrom...". KELLER discloses the use of rubber-like damper members (16) installed between the fins. A projecting button portion (20) of the damper member (16) is provided to extend into a fin hole (14) provided on the cooling fins (12).

26. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the cooling fins of RYU et al with fin holes for the installation of damper members, in light of the teachings of KELLER, in order to damp vibration of fins projecting from the cylinder.

27. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over RYU et al (US 6,216,660) and POLES et al (US 2001/0021363) as applied to Claims 1-2, 6-7, 11-14 and 16-17 above, and further in view of BUSCH et al (US 2001/0052410).

28. RYU et al, as described above, discloses a hand-held type 4-cycle engine comprising of an engine body (1), a cooling blade (60) to provide air flow, an air inlet (68i), an air passage (68), a shroud (69), a cylinder block (6) with a single cylinder (9) which further includes cooling fins (10). POLES et al, as described above, discloses a method and apparatus for treating the atmosphere by utilizing a catalyst that can treat pollutants, such as ozone, at ambient conditions "by coating a surface (e.g. motor vehicle atmosphere contacting surfaces)". However, both references are silent on the use of cooling fins with protrusions.

29. Note that casted parts such as cooling fins (either integrally with the engine block 1or separately installed) does not have a perfectly smooth surface and therefore contain many micro-protrusions that are capable of producing turbulence (please see the article entitled "Case Study #2" which performs a "media blast and acid etch" operation to increase air turbulence for increased cooling). Thus, the piston rings of RYU et al would inherently have micro-protrusions on the surface of the cooling fins capable of producing turbulence.

30. Alternatively, BUSCH et al discloses a cooling fin arrangement on a cooling fluid-receiving surface where the cooling fins comprise traditionally a smooth outer surface (17) so that the boundary layer (18) along the cooling fins is laminar. By providing a

disruptive element (20) to break this laminar flow pattern to create turbulence and thus improving heat transfer from the cooling fins.

31. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the cooling fins of RYU et al with disruptive elements, in light of the teachings of BUSCH et al, in order to create a turbulent flow over the cooling fins to improve heat transfer from the cooling fins

32. Claims 1-2, 6-9, 11-13 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over TORIYAMA et al (US 6,218,804) in view of POLES et al (US 2001/0021363).

33. TORIYAMA et al discloses a scooter-type motorcycle with an internal combustion engine (200) comprising of a cylinder block (203), a cylinder head (204), a scavenging passage (205), an ignition plug (206) inserted into the cylinder head (204), and a fan shroud (207) covering the cylinder head (204) and block (203) except for the exposed portion of the ignition plug (206). A fan member (280) is provided for forcibly air-cooling the internal combustion engine and is integrally provide on the rotor (40) and is also covered with a fan cover (281). However, TORIYAMA et al does not disclose the use of a catalyst layer on the cooling fins for treating atmospheric pollutants.

34. POLES et al, as described above, discloses a method and apparatus for treating the atmosphere by utilizing a catalyst that can treat pollutants, such as ozone, at

ambient conditions "by coating a surface (e.g. motor vehicle atmosphere contacting surfaces)".

35. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the engine surfaces of TORIYAMA et al that contact ambient drawn by the fan with an ozone treating catalyst, in light of the teachings of POLES et al, in order to convert the pollutant ozone into oxygen.

36. Specifically regarding Claim 1, the cooling fins on the cylinder block (203), as illustrated in Figure 5, utilizes air inducted by the fan member (280) to provide a cooling effect for the engine and is therefore a good candidate for the application of the above ozone treating catalyst. With regards to the limitation that the shroud is provided with an "upper portion" and "lower portion" cover members, the shroud of TORIYAMA et al inherently has an upper half and lower half, defined for example as the portion above the top of the fan cover (281) and below the fan cover (281) when viewed in the orientation of Figure 5. The two portions as a whole defines a cooling passage and helps direct cooling air. TORIYAMA et al is silent on whether the shroud is formed in multiple pieces or integrally, but in either case the region near to the top of the cylinder head identified as a "top portion" and region near the bottom of the cylinder block can be identified as a "lower portion". Note also that the fan cover (281) is connected to the shroud (207).

37. Specifically regarding Claims 2, 11, and 13, the inner surface of the shroud (207) defines an air passage that guides and directs air inducted by the fan member (280)

and is therefore also a good candidate for the application of the above ozone treating catalyst.

38. Specifically regarding Claim 12, it is known in the art to produce fan shrouds/cowls using a plastic material (for examples see US 6,123,051 and US 6,189,492,) and moreover it is common to form these shrouds using an injection-molded process (for examples see US 5,423,660 and US 6,595,744). It is well known in the art of injection-molding to provide the use of ribs to strengthen parts instead of increasing the thickness of the walls, and further to provide dimensional control during the injection molding process. Note that since the shroud has curved cross section, it would have been obvious to one of ordinary skill in the art to produce an injected molded shroud with curved ribs (corresponding to the shroud curvature) to strengthen and stiffen the shroud without increasing the thickness of the wall.

39. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over TORIYAMA et al (US 6,218,804) and POLES et al (US 2001/0021363) as applied to Claims 1-2, 6-9, 11-13 and 16-17 above, and further in view of BUSCH et al (US 2001/0052410).

40. TORIYAMA et al, as described above, discloses a scooter-type motorcycle with an internal combustion engine (200) comprising of a cylinder block (203), a cylinder head (204), a scavenging passage (205), an ignition plug (206) inserted into the cylinder head (204), a fan shroud (207) and a fan member (280) including a fan cover (281). POLES et al, as described above, discloses a method and apparatus for treating the

atmosphere by utilizing a catalyst that can treat pollutants, such as ozone, at ambient conditions "by coating a surface (e.g. motor vehicle atmosphere contacting surfaces)". However, both references are silent on the use of cooling fins with protrusions.

41. Note that casted parts such as cooling fins (either integrally with the engine block or separately installed) does not have a perfectly smooth surface and therefore contain many micro-protrusions that are capable of producing turbulence; for instance the article entitled "Case Study #2" performs a "media blast and acid etch" operation to increase air turbulence for increased cooling by roughing up the surfaces. Thus, the piston rings of RYU et al would inherently have micro-protrusions on the surface of the cooling fins capable of producing turbulence.

42. Alternatively, BUSCH et al discloses a cooling fin arrangement on a cooling fluid-receiving surface where the cooling fins comprise traditionally a smooth outer surface (17) so that the boundary layer (18) along the cooling fins is laminar. By providing a disruptive element (20) to break this laminar flow pattern to create turbulence and thus improving heat transfer from the cooling fins.

43. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the cooling fins of RYU et al with disruptive elements, in light of the teachings of BUSCH et al, in order to create a turbulent flow over the cooling fins to improve heat transfer from the cooling fins

Independent Claim 3 and Dependent Claim 10

44. Claim 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over RYU et al (US 6,216,660) in view of POLES et al (US 2001/0021363).

45. RYU et al, as described above, discloses a hand-held type 4-cycle engine comprising of an engine body (1), a cooling blade (60) to provide air flow, an air inlet (68i), an air passage (68), a shroud (69), a cylinder block (6) with a single cylinder (9) which further includes cooling fins (10). Additionally, RYU et al discloses an outer cover (55) coupled to a head cover (26), which is separate from the shroud (69) as illustrated in Figure 2. Moreover, a centrifugal clutch (64) is attached to the cooling blade (60) forming a "cover" and the "cover" is surrounding along the perimeter by the shroud (69) forcing cooling air to enter the inlet (68i) between the clutch (64) and shroud (69). However, RYU does not disclose the use of a catalyst layer on the cooling fins for treating atmospheric pollutants.

46. POLES et al, as described above, discloses a method and apparatus for treating the atmosphere by utilizing a catalyst that can treat pollutants, such as ozone, at ambient conditions "by coating a surface (e.g. motor vehicle atmosphere contacting surfaces)".

47. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the engine surfaces of RYU et al that contact ambient drawn by the fan with an ozone treating catalyst, in light of the teachings of POLES et al, in order to convert the pollutant ozone into oxygen. Specifically the cooling fins (10) of RYU et al utilizes air inducted by the cooling blade

(60) to provide a cooling effect for the engine and is therefore a good candidate for the application of the above ozone treating catalyst.

48. Claim 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over TORIYAMA et al (US 6,218,804) in view of POLES et al (US 2001/0021363).

49. TORIYAMA et al discloses a scooter-type motorcycle with an internal combustion engine (200) comprising of a cylinder block (203), a cylinder head (204), a scavenging passage (205), an ignition plug (206) inserted into the cylinder head (204), and a fan shroud (207) covering the cylinder head (204) and block (203) except for the exposed portion of the ignition plug (206). A fan member (280) is provided for forcibly air-cooling the internal combustion engine and is integrally provide on the rotor (40) and is also covered with a fan cover (281). Note that the fan cover (281) is connected to the fan shroud (207). However, TORIYAMA et al does not disclose the use of a catalyst layer on the cooling fins for treating atmospheric pollutants.

50. POLES et al, as described above, discloses a method and apparatus for treating the atmosphere by utilizing a catalyst that can treat pollutants, such as ozone, at ambient conditions "by coating a surface (e.g. motor vehicle atmosphere contacting surfaces)".

51. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the engine surfaces of TORIYAMA et al

that contact ambient drawn by the fan with an ozone treating catalyst, in light of the teachings of POLES et al, in order to convert the pollutant ozone into oxygen.

Independent Claim 4

52. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over RYU et al (US 6,216,660) in view of POLES et al (US 2001/0021363) and KELLER (US 2,635,858).

53. RYU et al, as described above, discloses a hand-held type 4-cycle engine comprising of an engine body (1), a cooling blade (60) to provide air flow, an air inlet (68i), an air passage (68), a shroud (69), a cylinder block (6) with a single cylinder (9) which further includes cooling fins (10). Additionally, RYU et al discloses an outer cover (55) coupled to a head cover (26), which is separate from the shroud (69) as illustrated in Figure 2. However, RYU does not disclose the use of a catalyst layer on the cooling fins for treating atmospheric pollutants.

54. POLES et al, as described above, discloses a method and apparatus for treating the atmosphere by utilizing a catalyst that can treat pollutants, such as ozone, at ambient conditions "by coating a surface (e.g. motor vehicle atmosphere contacting surfaces)".

55. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the engine surfaces of RYU et al that contact ambient drawn by the fan with an ozone treating catalyst, in light of the teachings of POLES et al, in order to convert the pollutant ozone into oxygen.

Specifically the cooling fins (10) of RYU et al utilizes air inducted by the cooling blade (60) to provide a cooling effect for the engine and is therefore a good candidate for the application of the above ozone treating catalyst.

56. KELLER, as described above, discloses a vibration damping means and is particularly directed to damping vibrations of fins projecting from a body that is to be heated or cooled. KELLER cites for example "cylinders of an air-cooled internal combustion engine are provided with a plurality of spaced fins projecting therefrom...". KELLER discloses the use of rubber-like damper members (16) installed between the fins. A projecting button portion (20) of the damper member (16) is provided to extend into a fin hole (14) provided on the cooling fins (12).

57. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the cooling fins of RYU et al with fin holes for the installation of damper members, in light of the teachings of KELLER, in order to damp vibration of fins projecting from the cylinder.

Independent Claim 5

58. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over HOLBEN (US 2,680,601) in view of POLES et al (US 2001/0021363).

59. HOLBEN discloses a cooling fin structure which "has been applied to the cylinders of an aircraft engine" comprising an inner edge which includes a plurality of tabs (20b) and recesses (22b). This arrangement allows for the installation a double fin (16) and anchoring strip (18) into the spaced annular grooves (12) of the engine cylinder

barrel (10). However, HOLBEN does not disclose the use of a catalyst layer on the cooling fins for treating atmospheric pollutants.

60. POLES et al, as described above, discloses a method and apparatus for treating the atmosphere by utilizing a catalyst that can treat pollutants, such as ozone, at ambient conditions "by coating a surface (e.g. motor vehicle atmosphere contacting surfaces)".

61. Thus it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have provided the cooling fin structure of HOLBEN with an ozone treating catalyst, in light of the teachings of POLES et al, in order to convert the pollutant ozone into oxygen. Specifically the cooling fin structure of HOLBEN utilizes air passing over the cooling fins to provide a cooling effect for the engine cylinder barrel and is therefore a good candidate for the application of the above ozone treating catalyst.

Response to Arguments

62. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

63. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

64. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is listed in the attached PTO-892.

65. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ka Chun Leung whose telephone number is (571) 272-9963. The examiner can normally be reached on 7:30AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Cronin can be reached on (571) 272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCL

Ka Chun Leung
Examiner
Art Unit 3747

STEPHEN K. CRONIN
SUPERVISORY PATENT EXAMINER